

REMARKS/ARGUMENTS

The Applicants have carefully considered this application in connection with the Examiner's Action and respectfully request reconsideration of this application in view of the foregoing amendment and the following remarks.

The Applicants originally submitted Claims 1-30 in the application. Currently, the Applicants have amended Claims 1, 6, 8, 10, 17, 24 and 29 and have canceled Claims 4-5, 7 and 20-21. No other claims have been amended, canceled nor added. Accordingly, Claims 1-3, 6, 8-19 and 22-30 are currently pending in the application.

I. Rejection of Claims 1-6, 8, and 17-22 under 35 U.S.C. §102

The Examiner has rejected Claims 1-6, 8, 17-22 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,366,688 to Jun ("Jun"). Independent Claims 1 and 17 currently include the elements of selecting an intensity line profile from the intensity profile, counting a number of defect intensity pixels from the intensity line profile, and determining a defect density in the material's surface from the intensity line profile of the intensity profile. Jun fails to disclose these elements.

In contrast to the claimed invention, Jun is directed to a system for detecting contact failures (defects) using a scanning electron microscope. Jun teaches that the image obtained from the scanning electron microscope can be converted to an intensity profile. Jun then teaches that the intensity profile can be used to identify contact failures. While Jun does disclose choosing a vertical or horizontal line along the intensity profile and summing up the intensity values along the line, this teaching is dissimilar to the claimed element of selecting an intensity line profile from the intensity

profile and counting a number of defect intensity pixels from the intensity line profile. For example, where Jun is summing the intensity values of the line, the present invention is summing the number of defects of the intensity line profile. Accordingly, where the present invention provides the number of defects, it appears that Jun provides the severity of the defect. These two ideas are quite different from one another.

Therefore, Jun does not disclose each and every element of the claimed invention and as such, is not an anticipating reference. Because Claims 2-6, 8 and 18-22 are dependent upon Claims 1 and 17, Jun also cannot be an anticipating reference for Claims 2-6, 8 and 18-22. Accordingly, the Applicants respectfully request the Examiner to withdraw the §102 rejection with respect to these Claims.

II. Rejection of Claims 1, 7-9, 11, 17, 22-23 and 25 under 35 U.S.C. §102

The Examiner has rejected Claims 1, 7-9, 11, 17, 22-23 and 25 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,808,735 to Lee ("Lee"). As established above, independent Claims 1 and 17 currently include the elements of selecting an intensity line profile from the intensity profile, counting a number of defect intensity pixels from the intensity line profile, and determining a defect density in the material's surface from the intensity line profile of the intensity profile. Lee fails to disclose these elements.

In contrast to the claimed invention, Lee is directed to a method for detecting and characterizing defects on a semiconductor wafer. Lee discloses that the surface of the wafer can be scanned and that a 3-dimensional intensity profile of the surface may then be prepared. The 3-dimensional profile may then be used to detect defects on the wafer.

As the Examiner basically conceded by failing to reject dependent Claim 4, which was ultimately included within the independent claims of the present invention, Lee fails to disclose the element of breaking the intensity profile into one or more intensity line profiles and counting a number of defect intensity pixels from the intensity line profile. Therefore, Lee does not disclose each and every element of the claimed invention and as such, is not an anticipating reference. Because Claims 7-9, 11, 22-23 and 25 are dependent upon Claims 1 and 17, Lee also cannot be an anticipating reference for Claims 7-9, 11, 22-23 and 25. Accordingly, the Applicants respectfully request the Examiner to withdraw the §102 rejection with respect to these Claims.

III. Rejection of Claims 10, 14-15 and 24 under 35 U.S.C. §103

The Examiner has rejected Claims 10, 14-15 and 24 under 35 U.S.C. §103(a) as being unpatentable over Lee in view of U.S. Patent No. 5,867,597 to Peairs, *et al.* ("Peairs"). As established above, independent Claims 1 and 17 currently include the elements of selecting an intensity line profile from the intensity profile, counting a number of defect intensity pixels from the intensity line profile, and determining a defect density in the material's surface from the intensity line profile of the intensity profile. Lee fails to disclose these elements. Because Lee fails to even mention counting a number of defect intensity pixels from the intensity line profile, Lee also fails to suggest this element.

Peairs fails to correct the deficiencies of Lee. The Examiner is offering Peairs for the sole proposition that the defect density may be calculated by dividing the number of defect intensity pixels by the total number of intensity pixels, or so called normalizing the intensity profile. Without commenting on whether Peairs actually teaches what the Examiner asserts, a teaching of

normalizing a 3-dimensional profile of intensity is quite different from counting a number of defect intensity pixels from the intensity line profile, and determining a defect density in the material's surface from the intensity line profile of the intensity profile, as currently claimed. Accordingly, Peairs also fails to teach or suggest this claimed element.

Accordingly, Lee, individually or in combination with Peairs, fails to teach or suggest the invention recited in independent Claims 1 and 17 and their dependent claims, when considered as a whole. The combination therefore fails to establish a prima facie case of obviousness with respect to independent Claims 1 and 17 and their dependent claims. Claims 10, 14-15 and 24 are therefore not obvious in view of Lee and Peairs.

In view of the foregoing remarks, the cited references do not support the Examiner's rejection of Claims 10, 14-15 and 24 under 35 U.S.C. §103(a). The Applicants therefore respectfully request the Examiner withdraw the rejection.

IV. Rejection of Claims 12-13, 16 and 26-28 under 35 U.S.C. §103

The Examiner has rejected Claims 12-13, 16 and 26-28 under 35 U.S.C. §103(a) as being unpatentable over Lee. The Applicants established above that Lee fails to teach or suggest all of the elements recited in independent Claims 1 and 17. Therefore, Lee fails to establish a prima facie case of obviousness with respect to independent Claims 1 and 17 and their dependent claims. Claims 12-13, 16 and 26-28 are therefore not obvious in view of Lee.

In view of the foregoing remarks, the cited reference does not support the Examiner's rejection of Claims 12-13, 16 and 26-28 under 35 U.S.C. §103(a). The Applicants therefore respectfully request the Examiner withdraw the rejection.

V. Rejection of Claims 29-30 under 35 U.S.C. §103

The Examiner has rejected Claims 29-30 under 35 U.S.C. §103(a) as being unpatentable over Jun in view of U.S. Patent No. 5,406,213 to Henley ("Henley"). Independent Claim 29 currently includes the elements of selecting an intensity line profile from the intensity profile, counting a number of defect intensity pixels from the intensity line profile, and determining a defect density in the material's surface from the intensity line profile of the intensity profile. Jun fails to disclose these elements. Because Jun fails to even mention counting a number of defect intensity pixels from the intensity line profile, Jun also fails to suggest this element. Moreover, one skilled in the art would not be motivated by the teachings of Jun to count a number of defect intensity pixels from the intensity line profile, as claimed, unless that person was using the present invention as a blueprint. As the Examiner is well aware, this is impermissible.

Henley fails to correct the deficiencies of Jun. The Examiner is offering Henley for the sole proposition that the material may be rejected based upon a large number of defects in the material's surface. Without commenting on whether Henley actually teaches what the Examiner asserts, a teaching of rejecting a material based upon finding a large number of defects is quite different from counting a number of defect intensity pixels from the intensity line profile, and determining a defect density in the material's surface from the intensity line profile of the intensity profile, as currently claimed. Accordingly, Henley also fails to teach or suggest this claimed element.

Accordingly, Jun, individually or in combination with Henley, fails to teach or suggest the invention recited in independent Claim 29 and its dependent claims, when considered as a whole. The combination therefore fails to establish a prima facie case of obviousness with respect to

independent Claim 29 and its dependent claims. Claims 29-30 are therefore not obvious in view of Jun and Henley.

In view of the foregoing remarks, the cited references do not support the Examiner's rejection of Claims 29-30 under 35 U.S.C. §103(a). The Applicants therefore respectfully request the Examiner withdraw the rejection.

VI. Conclusion

In view of the foregoing amendment and remarks, the Applicants now see all of the Claims currently pending in this application to be in condition for allowance and therefore earnestly solicit a Notice of Allowance for Claims 1-3, 6, 8-19 and 22-30.

The Applicants request the Examiner to telephone the undersigned attorney of record at (972) 480-8800 if such would further or expedite the prosecution of the present application.

Respectfully submitted,

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